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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,022	02/14/2002	John Rhoades	032658-025	5634

42015 7590 09/26/2006

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EXAMINER	
FILIPCZYK, MARCIN R	
ART UNIT	PAPER NUMBER
2163	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/074,022	RHOADES, JOHN	
	Examiner	Art Unit	
	Marc R. Filipczyk	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15-25 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-25 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 July 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

This action is responsive to Applicant's response filed on July 26, 2006 wherein claims 1-13, 15-25 and 37 are pending.

To expedite the process of examination Examiner requests that all future correspondences in regard to overcoming prior art rejections or other issues (e.g. amendments, 35 U.S.C. 112, objections and the like) set forth by the Examiner that Applicants provide and link to the most specific page and line numbers of the disclosure where the best support is found (see 35 U.S.C. 132).

Claim Rejections - 35 USC § 112

The following is a quotation of the **second paragraph** of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-13, 15-25 and 37, the phrases "the whole" and "whenever" are indefinite. It is not clear what the whole table includes since databases traditionally comprise of many tables. "Whenever" should be replaced by "when".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1-13, 15-25 and 37 are rejected under 35 U.S.C. 103(a) as best as the Examiner is able to ascertain as being unpatentable over Greene (U.S. Patent No 6,631419) in view of Wilkinson III et al (U.S. Patent No. 6,014,659).

Regarding claims 1 and 21-25, Greene discloses a system and method, wherein a look up engine (fig. 1, 106, Greene) comprising a storage means for storing a look up table, said look up table comprising a plurality of entries (fig. 1, 108, Greene), each entry comprising a value, an associated key value (col. 7, lines 32-34, Greene), such that, in operation, a look up is carried out by outputting a value which is associated with the stored key value which matches an input key value (Fig. 1, values D1, D2 and col. 4, lines 49-52, col. 7, lines 34-36, Greene), the look up engine being capable to perform multiple look ups of the same look up table concurrently (fig. 1, 106 and 108, and col. 4, lines 55-67, col. 7, lines 10-18 and col. 31, lines 60-67, Greene) the state machines all having concurrent access to the entries in the entire table when they perform a look up (fig. 1, item 108 and col. 8, lines 12-35), but does not explicitly teach the look up engine comprises a plurality of look up state machines connected in parallel.
(*Note: Arrays or table [A1, A2, A3] comprises entries with prefixes of a preset length, wherein prefixes of less than 22-bits and prefixes greater than 22-bits are searched concurrently by portion of a search key*)

However, search engines are notoriously well known to comprise multiple state machines to handle multitasking. For instance, Wilkinson discloses prefix matching database searching (see title and abstract, Wilkinson) where he teaches a number of registers and elementary state

machines operating concurrently, collectively known as a search engine, to directly access memory (fig. 3, item 40, col. 8, lines 2-4 and col. 15, lines 21-25, Wilkinson). Hence, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Greene and Wilkinson systems by modifying Greene's look up engine to include the plurality of look up state machines taught by Wilkinson to support Greene's multiple input strings and multiple memories to operate concurrently as suggested by Greene (col. 31, lines 60-64, Greene) and taught by Wilkinson.

(*Note: a table may be partitioned to a plurality of tables, table and tables are interchangeable, hence, performing operations on many tables is equivalent to performing operations on one table*)

Regarding claim 2, Greene/Wilkinson teach entries are stored in a trie structure (col. 7, lines 27-37, Wilkinson).

Regarding claim 3, Greene/Wilkinson teach the trie structure is a PATRICIA trie structure (col. 3, lines 15-22 and 30-58, Greene).

Regarding claim 4, Greene/Wilkinson teach input and output buffers (fig. 1, item 102 and col. 6, lines 47-56, Greene).

Regarding claims 5 and 6, Greene/Wilkinson teach distributing and collecting the input key values and respective outputs (fig. 1, items 14, 20, 22 and 40, col. 9, lines 63-66, Wilkinson).

Regarding claims 7 and 8, Greene/Wilkinson teach the length of the look up values and key values is fixed and/or variable (fig. 17 and col. 2, lines 7-21, Greene).

Regarding claim 9, Greene/Wilkinson teach tagging keys (col. 26, lines 32-49, Greene).

Regarding claim 10, Greene/Wilkinson teach storing an identity of the requestor such that the output value is sent to the correct location (fig. 3, item 14, Wilkinson).

Regarding claims 11-13, Greene/Wilkinson teach a type of error and identifying the location of bits that are mismatched (fig. 5, BIT MASK, and col. 31, lines 14-22, Wilkinson).

Regarding claim 37, Greene/Wilkinson teach an entry further comprises a skip value (figs. 1-5 and col. 7, lines 36-50 and col. 8, lines 36-50, Greene), and the input key comprises a plurality of bits such that, if the skipped bits of the input key value and the associated skip value mismatches, an error message is output to indicate lookup failure (col. 9, lines 10-15 and 35-48, Greene).
(*Note: if there is no match, an error flag may be displayed*)

Regarding claims 15-20, Greene/Wilkinson teach internal/external memory and partitioning the memory comprising plurality of entries (fig. 1, item 108: M1, M2, M3 and col. 7, lines 14-18, Greene.

Response to Arguments

Applicant's amendment and arguments filed July 26, 2006 have been fully considered but they are not persuasive. The arguments and responses are listed below.

Applicant argues on pages 7 and 8 in the 7/26/06 response that Greene processes data sequentially and not concurrently as claimed.

Examiner disagrees. Arrays or table [A1, A2, A3] comprises entries with prefixes of a preset length, wherein prefixes of less than 22-bits and prefixes greater than 22-bits are searched concurrently by portion of a search key. Multiple field look ups are performed on a table represented by three memories M1-M3 which comprise data values (col. 31, lines 61-64). It appears that Applicant may be misinterpreting the processing of updating data and searching data. While it is well known that writing data and updating data in prior art systems is mostly done sequentially as in Greene to maintain data integrity, searching/looking up data is performed concurrently/simultaneously by concurrent processing to handle multi-query searching such as google search engine, see the disclosure of simultaneous queries processing in Greene in col. 8, lines 29-35.

Applicant argues on pages 8 and 9 in the 7/26/07 response that "Wilkinson is only capable of handling a single request at any one time".

Examiner disagrees. Wilkinson clearly discloses state machines operate concurrently (col. 15, lines 20-27) to concurrently access memory (col. 21, lines 35-57). Concurrent

processing mandates handling more than one request. Further, Greene in view of Wilkinson disclose performing multiple look ups on the same table.

With respect to all the pending claims 1-13, 15-25 and 37, Examiner respectfully traverses Applicant's assertion based on the discussion and rejections cited above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc R. Filipczyk whose telephone number is (571) 272-4019. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MF
September 19, 2006

DON WONG
SUPERVISORY PATENT EXAMINER
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